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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/058,242 | 01/29/2002 | James O'Reilly | | 3526 |

7590 12/14/2005
James O'Reilly
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EXAMINER

BLAIR, DOUGLAS B

ART UNIT PAPER NUMBER

2142

DATE MAILED: 12/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/058,242

Applicant(s)

O'REILLY, JAMES

Examiner

Douglas B. Blair

Art Unit

2142

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Claims 1-8 are currently pending in this application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,516,350 to Lumelsky et al. in view of U.S. Patent Number 6,163,856 to Dion et al..

2. As to claim 1, Lumelsky teaches a means of building a Scalable Network-Attached Storage system where control of the data storage elements of said system is distributed over the computer elements of said system, allowing said computer elements to access and control said data elements in a shared fashion whereby:

a) Control of the data-storage sub-elements of a data storage element can reside in different computer elements, so allowing large numbers of computer elements to be used in that Scalable Network-Attached Storage system, and so allowing said system to be easily and economically expanded in size and performance and reconfigured to needs (col. 9, lines 15-30);

b) Control of any such data storage sub-element can be replicated in several computer elements in such a way that these several computer elements can access said data sub-elements (col. 9, lines 15-30);

c) Allocation to the set of computer elements of said control of access to said data elements and data sub-elements is initially established by a software functionality according to a set of user and computer generated policy rules, and where said software functionality adjusts said distribution of access control across said computer elements on a periodic basis, depending on metrics measured periodically throughout the Scalable Network-Attached Storage system (col. 10, lines 18-44);

d) Computer elements are specifically designated as the initial contact point for a client computer to the Scalable Network-Attached storage system, which designated computer elements have a software facility to determine that computer element having control of the data storage element that said client computer wishes to access and by means of said software facility re-direct said client computer to communicate directly with that computer elements (col. 9, lines 40-64),

e) Where the software facility of paragraph c) in Claim 1) above detects the addition of new computer elements to the Scalable Network-Attached Storage system via the periodic metrics transmitted to said software facility by said new computer element; and thereby said software facility re-maps the allocation to said computer elements of access control of said data storage elements to make use of said new computer elements, and where the loss of a computer element through failure or removal is detected by a loss of periodic metric data, so causing said software facility to re-map the allocation to the remaining computer elements of access control of those data storage elements previously controlled by said lost computer elements (col. 11, lines 31-59); however Lumelsky does not explicitly teach control information describing the physical location on storage media of the blocks of data stored on said storage media and describing the

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file-system structure determining the inter-relationship of said blocks of data that form a set of data storage elements

Dion teaches a scalable network-attached storage system including control information describing the physical location on storage media of the blocks of data stored on said storage media and describing the file-system structure determining the inter-relationship of said blocks of data that form a set of data storage elements with the necessary control processes to change the control information (col. 9, line 37-col. 10, line 22).

It would have been obvious to one of ordinary skill in the Computer Networking art at the time of the invention to combine the teachings of Lumelsky regarding the management of a distributed storage system with the teachings of Dion regarding the distribution of a file system because a file system are commonly distributed for disaster recovery purposes (Dion, col. 4, line 57-col. 5, line 6).

3. As to claim 2, Lumelsky teaches an extension of the means of Claim 1) where temporary loss of access to said data storage elements is reduced by having a prepared backup map of the Scalable Network-Attached Storage system, whereby another backup computer element, which is configured to rapidly take control of said data elements, is designated for each computer element in such a way that a hardware or software failure will not affect both said computer element and its designated backup simultaneously, so that a failure detected by the software facility in Para e) of Claim 1) will cause that software facility to move control to said backup computer element; And where said backup computer element may be a computer element or one of a set of computer elements specifically and solely functioning as backup computer elements;

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Or where said backup computer element may be a computer element that is actively controlling access to other data storage elements (col. 11, lines 31-59).

4. As to claim 3, Lumelsky teaches an extension to the means of Claim 1) where the performance of the Scalable Network-Attached Storage system is increased by mapping multiple computer elements to be able to control any given data storage element, Where one of said controlling computer elements is designated as the sole computer element allowed to change said data storage element with the other computer elements being able to read said data storage element', or where the type of data storage element or the client computers' method of accessing same permits multiple computer elements to change said data storage element (col. 11, lines 31-59).

5. As to claim 4, Lumelsky teaches an exclusion to Claim 3 whereby the ability of the system to recover from a failure is enhanced by having a data replication software facility which allows a computer element to replicate data according to policy rules managed by the system, with said replication being to both local computer elements who store such replicas on the data storage elements under their controls or to remote computer elements permitting copies of data to be at a safe distance to protected against natural or man-made disasters, and where said data replication software facility may also be used to provide copies of data at the remote site or sites for said remote site or sites to be able to access data more rapidly than if it were at the originating site; And where the said policy rules for replication may include schedule, frequency and priority of replication, number of backup copies, type of backup data storage elements and other policy rules (col. 11, lines 31-59).

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6. As to claim 5, Lumelsky teaches an extension of Claim 1 above whereby a two-tier system is used to manage unused free space in the Scalable Network-Attached Storage system and its derivatives, such two-tier system being implemented as a software facility that provides both a means to allocate part of the available unused free space to each computer element, keeping the remainder under its own control, and which software facility uses policy rules to monitor, control and change this allocation periodically based on metric information reported to said software facility by the computer elements (col. 11, lines 31-59).

7. As to claim 6, Lumelsky teaches an extension to the means in the above claims whereby a set of the data storage elements and computer elements in a Scalable Network-Attached Storage system are designated as a Secure Scalable Network-Attached Storage system, with the data storage elements being encrypted by the client computer, and with the file structure of said data elements being encrypted, and with communications between the client systems and the Scalable Network-Attached storage system being encrypted (col. 10, lines 45-65).

8. As to claim 7, Dion teaches an extension to the means in claim 1 whereby those means are employed to take advantage of data storage elements in the client computers by using said data storage elements in part or in whole as data storage elements in a distributed form of Scalable Network-Attached Storage, where the data storage elements in any given client computer can be shared with other computers under the control of the scalable network attached storage software forming the invention, as extended to provide the peer-based storage network capability, and with the features of replication and security as claimed above and described herein; where software facilities are provided to allow designation of the amount of said data storage elements a client computer may wish to share; with software facilities to increase or

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decrease said amount as desired without causing loss of data to the client computer sharing the data storage elements being changed; where replication and backup policies may be developed to protect automatically against loss of a client computer and/or its stored data on its data storage elements (col. 9, line 37-col. 10, line 22).

9. As to claim 8, Dion teaches an extension to the means in claim 1 of the invention whereby the computer elements are contained within a storage network switching element (col. 9, line 37-col. 10, line 22).

Response to Arguments

10. Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

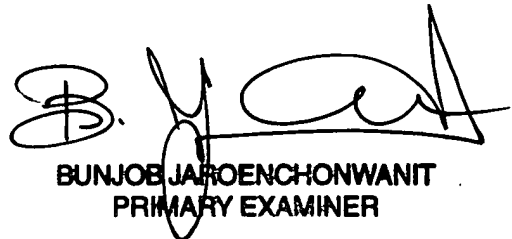
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas B. Blair whose telephone number is 571-272-3893. The examiner can normally be reached on 8:30am-5pm Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on 571-272-3868. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Douglas Blair

DBB


BUNJOE JAROENCHONWANIT
PRIMARY EXAMINER